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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/678,923	10/04/2000	Kenneth G. DeRoche	K-1633	7253
7590	11/30/2004		EXAMINER TSAI, HENRY	
Larry R. Meenan Kennametal Inc. P. O. Box 231 Latrobe, PA 15650			ART UNIT .2183	PAPER NUMBER

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/678,923

Applicant(s)

DEROCHE ET AL.

Examiner

Henry W.H. Tsai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/05/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 05 October 2004 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujimura et al. (U.S. Patent No. 4,844,666), hereafter referred to as Tsujimura et al.'666 in view of Dotany (U.S. Patent No. 5,083,887), hereafter referred to as Dotany'887.

Referring to claim 1, Tsujimura et al.'666 discloses the claimed invention comprising, a tool body having an outer surface thereon and a central axis therein and including at least a first (including 24a, see Fig. 15) and second (including 24b, see Fig. 15) spiraling flute in the outer surface, each flute including a plurality of inserts (24a, 24b, see Fig. 15) secured therein to define an axial rake angle, wherein the axial

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rake angle of the inserts (24a, 24b, see Fig. 15) varies between flutes (e.g., changing from a1 to a4, see Fig. 15), and within each flute (changing from a1, a2, to a3 for the flute having inserts 24a, see Fig. 15) to provide all effective cutting.

Note the combination of the cutting flutes as shown in Fig. 15 provides all effective cutting).

Note Tsujimura et al.'666 also discloses the limitations described:

in claim 2, all of the inserts (24a, 24b, see Fig. 15) on the entire tool body being identical;

in claim 6, the cutting edges on adjacent inserts (such as 24a, 24a, see Fig. 15) in any single flute do not circumferentially overlap; and

in claim 7, the inserts (24a, 24b, see Fig. 15) each having a cutting edge and the cutting edges on inserts with differing axial rake angles have differing cutting edge lengths (see Fig. 15).

Tsujimura et al.'666 discloses the claimed invention except for: providing single flute all effective cutting.

Tsujimura et al.'666's flutes have a big gap between the cutting edges on inserts in the axial direction. Chatter and vibration problems occur during the cutting process.

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Dotany'887 discloses a helical cutting tool comprising the flute to provide single flute all effective cutting (see Fig. 1, and Col. 4, lines 14-16, regarding the overlapping relation in the axial direction indicated by dimension "A" as shown in Fig. 1)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Tsujimura et al.'666's tool to comprise the flute providing single flute all effective cutting, as taught by Dotany'887, in order to have a continuous, non-interrupted cutting line to facilitate the smooth cutting process and chip removal (see Col. 4, lines 18 and 19) for the Tsujimura et al.'666's tool.

3. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujimura et al.'666 in view of Dotany'887 as applied to claims 1, 2, 6, and 7 above, and further in view of Dutschke et al. (U.S. Patent No. 5,425,603), hereafter referred to as Dutschke et al.'603.

Tsujimura et al.'666 in view of Dotany'887 discloses the claimed invention except for: the tool body including three spiraling flutes (in claim 3).

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However, Tsujimura et al.'666's tool body includes four spiraling flutes (see Fig. 14).

Dutschke et al.'603 discloses a cutting insert comprising the tool body including three spiraling flutes (18, see Figs. 3a, and 3b).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Tsujimura et al.'666/Dotany'887's tool to comprise the tool body including three spiraling flutes, as taught by Dutschke et al.'603, since it is just an alternative (or simpler, changing from four to three flutes) flute arrangement of the flutes comparing with the structure of the Tsujimura et al.'666/Dotany'887's tool.

As to claim 4, Tsujimura et al.'666/Dotany'887 also discloses: all of the inserts (24a, 24b in Tsujimura et al.'666 and 4, 4 in Dotany'887) on the entire tool body being identical.

As to claim 5, Tsujimura et al.'666 also discloses: each insert (such as 24a, 24a, see Fig. 15) having an actual length longer than the cutting edge (since each cutting insert has an axial rake angle as shown in Fig. 15), and the actual lengths of adjacent inserts (such as 24a, 24a, see Fig. 15) in any single flute do not circumferentially overlap.

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Response to Amendment

4. Applicant's arguments filed 10/5/04 have been fully considered but they are not deemed to be persuasive.

Regarding the drawings and 35 U.S.C. §112, second paragraph problems, Applicant's response has overcome these objections and rejections.

Applicants argue that there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Tsujimura with the teachings of Dotany (page 8, last paragraph). Examiner disagrees with Applicants. As set forth in the art rejections above, Tsujimura et al.'666 discloses the claimed invention except for: providing single flute all effective cutting. Tsujimura et al.'666's flutes have a big gap between the cutting edges on inserts in the axial direction. Chatter and vibration problems occur during the cutting process. Dotany'887 discloses a helical cutting tool comprising the flute to provide single flute all effective cutting (see Fig. 1, and Col. 4, lines 14-16, regarding the overlapping relation in the axial direction indicated by dimension "A" as shown in Fig. 1)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Tsujimura

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et al.'666's tool to comprise the flute providing single flute all effective cutting, as taught by Dotany'887, in order to have a continuous, non-interrupted cutting line to facilitate the smooth cutting process and chip removal (see Col. 4, lines 18 and 19) for the Tsujimura et al.'666's tool.

Applicants further argue that Dotany appears to teach away from Tsujimura and the claimed invention. Dotany teaches that the rake angles do not vary between flutes and within each flute. (page 8, last two lines and page 9, line 3). Examiner disagrees with Applicants. As set forth in the art rejections above, Tsujimura et al.'666 discloses the claimed invention comprising, each flute including a plurality of inserts (24a, 24b, see Fig. 15) secured therein to define an axial rake angle, wherein the axial rake angle of the inserts (24a, 24b, see Fig. 15) varies between flutes (e.g., changing from a1 to a4, see Fig. 15), and within each flute (changing from a1, a2, to a3 for the flute having inserts 24a, see Fig. 15). Note Dotany'887's reference is used to teach the flute providing single flute all effective cutting as set forth above in the art rejections. Tsujimura et al.'666 comprises the limitations of the rake angles varying between flutes and within each flute.

In summary, Tsujimura et al.'666, Dotany'887, and Dutschke et al.'603 teach the claimed invention.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Henry Tsai whose telephone number is (571) 272-4176. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful,

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the examiner supervisor, Eddie Chan, can be reached on (571) 272-4162. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC central telephone number, 571-272-2100.

7. In order to reduce pendency and avoid potential delays, Group 2100 is encouraging FAXing of responses to Office actions directly into the Group at fax number: 703-872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2100 will be promptly forward to the examiner.



HENRY W. H. TSAI
PRIMARY EXAMINER

November 24, 2004